

sodium chlorides, calcium chloride, potassium chloride, bromides, polyphosphate, sodium, calcium, zinc, gilsonite, graphite, petroleum coke, calcine coke, Rockwool insulation and mixtures thereof.

10. The pelletized dense additive of claims 1-9 further comprising a binding agent selected from the group consisting of clays, guar gum, lignosulfonate, wood sugar, starch and mixtures thereof.

12. The pelletized dense additive of claim 1 wherein the base material is selected from the group consisting of ground wood, pine bark, fruit pomace, vegetable pomace, yellow pine, pine bark, corn cobs, peanut hulls, pecan pits, almond shell, corn cob outers, bees wings, cotton burrs, kenaf, silage, oat hulls, rice hulls, seed shells, sunflower, flax, linseed, cocoa bean, feathers, peat moss, jute, flax, mohair, wool, sugar cane, bagasse, sawdust, bamboo, cork, popcorn, tapioca, grain sorghum and soluble gums.

REMARKS

The Rejections

Claims 1 – 13 were rejected under the provisions of 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Claims 1 – 13 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 8, and 9 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,065,820 issued to Bloys (hereinafter "Bloys Patent").

Claims 1, 2, 7 – 11, and 13 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,836,940 issued to Alexander (hereinafter "Alexander '940").

Claims 1, 2, 7, 10, 11 and 13 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,217,965 issued to Cremeans (hereinafter "Cremeans '965").

Claims 1, 2, 5, and 8 - 12 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,428,844 issued to Wagener (hereinafter "Wagener Patent").

Claims 1, 2, 7, 10, and 13 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,462,470 issued to Alexander (hereinafter "Alexander '470").

Claims 1, 2, 7, 10, and 13 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 2,836,555 issued to Armentrout (hereinafter "Armentrout '555").

Claims 1, 2, 7 - 11, and 13 were rejected under the provisions of 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 2,642,268 issued to Armentrout (hereinafter "Armentrout '268").

Applicant respectfully traverses each basis of rejection.

Response to 35 U.S.C. § 112 Rejections

The Examiner states that the specification fails to teach that the lost circulation material is "raw," stating that adding "raw" to the claims is new matter. However, the specification includes at least two references to the use of a "raw" material for use in the present invention. These references can be found on page 10, lines 17 and 19. In addition to the disclosure of the use of raw materials, the supporting declaration of Ron Rose is enclosed specifying that the term lost circulation and seepage control material is generally understood in the industry to indicate a material that is not chemically treated. Such materials are always ground and mixed and may also be heated, but these steps are not chemical treatments. To indicate that an item is a lost circulation and seepage control material is to indicate that such material is in its raw state or chemically untreated. Thus, the term "raw" makes explicit in the claims the practice in the

industry and by those of ordinary skill in the art to indicate a material in a raw state by the use of such term.

It is to be noted that the term "raw," as used in connection with lost circulation and seepage control materials as well as rheological additives, is understood by those skilled in the art. It is appropriate to affirmatively indicate that such material has been "treated", if indeed it has been treated. It is also to be noted that once a material is treated, its properties may change and it may not act in the same way as the original starting material. For example, absorption properties could be modified and, in some cases, a pellet of treated material would not have the ability to break up on introduction into the mud pit. Chemical treatments may cause a reaction with other elements in the well bore. The oil well industry is intensely sensitive to any issue that might cause a termination or interruption of operations. A cessation of operations, for any reason, can give rise to losses of the order of hundreds of thousands of dollars within a very short period of time. As a result, any chemical treatment is explicitly acknowledged in this industry.

The Examiner indicates that Markush group expressions must follow a particular formula. Claims 2 – 10 and 12 have been amended to remove the term "essentially" from the Markush group language to meet the Examiner's requirement regarding this formality. This modification to meet formalities of style does not affect the scope of coverage of the claims.

The Examiner indicates that the use of the term "comprising" in the preamble of Claim 1, with the addition of the claim limitation of the materials being raw, does not distinguish the present application from Cremeans, Wagener, or Armentrout. Applicant has changed the language to "consisting of," at the suggestion of the Examiner. Applicant believes the original scope of the claim was appropriate and intends to pursue this broader coverage elsewhere in claims with such scope that are being prosecuted in related patent applications.

Applicant respectfully submits that there is support for adding the term "raw" in Claim 1. The specification included two explicit references to the use of a raw material and the attached declaration confirms that lost circulation materials are in a raw state implicitly as understood by one of ordinary skill in the art. Applicant has amended the claims to conform to Examiner's suggested Markush group language style and claim preamble language. As such, Applicant

respectfully submits that the reasons for the rejections based upon 35 U.S.C. § 112 are no longer present and the rejections should be withdrawn.

Response to 35 U.S.C. § 102(b) Rejections

Claims 1 – 11 and 13 have been amended to further distinguish the present invention from the cited references. As previously stated, the additive of the present invention is not chemically treated while those additives found in the other references are chemically treated. Other differences between the present invention and the cited references exist.

One significant difference between the instant invention and most of the other references is that each of the references cited, except for Wagener, requires that the lost circulation additive remain intact top side or in the mud pit and disperse, if at all, only once the additive has reached the zone that requires leakage control down hole. Those additives designed to break-up down hole are ineffective if they disperse too quickly. These references actually teach away from the present invention. Applicant's additive quickly disperses uniformly in the drilling fluid within the mud pit, which is where the additive is introduced to the drilling fluid. The claims have been amended to better clarify this feature of the invention. Support for this amendment can be found in the application on page 3, lines 15 – 16 ("It is an objective and a goal to provide an additive that is quickly and efficiently distributed throughout the drilling fluid upon introduction.") and on page 6, lines 6 – 8 ("With the quick hydration, the dense drilling fluid additive promptly disperses such that the additive is uniformly distributed through the drilling fluid as the drilling fluid is pumped down the hole.").

Bloys

It is the intent of Bloys to maintain the compressed sponge particles in the liquid fluid in the compressed state until they are circulated through the bore. The Bloys additive is separated from water until the sponge particles are in place by mixing the particles with a non-aqueous carrier liquid, such as a diesel fuel. If it is used in an aqueous drilling fluid, the carrier liquid is sent before and after the sponge particle and diesel mixture. When used with a non-aqueous drilling fluid, water is pumped behind the sponge particle and diesel mixture to provide the water necessary for expanding the sponge particles once they are in place (see abstract and col. 4, ll. 5

- 44). The sponge particles do not disperse directly upon introduction into the drilling fluid. As such, Bloys does not disclose each element of the present invention.

Alexander '940 and '470

Alexander '940 specifically requires that "pellets essentially maintain their original size as the pellets pass through the wellbore to the site of lost circulation" (abstract). In Alexander '470, there is no disclosure related to dispersion of the additive in the mud pit, prior to being pumped down hole, or upon introduction into the drilling fluid. Neither one of the Alexander references discloses each of the elements of the Applicant's invention. Thus, Alexander '940 and '470 do not anticipate the present invention, but rather, teach away from it.

Cremeans

It is the intent of the Cremeans disclosure to have a pellet that does not dissolve, but remains in tact to physically plug the formation through which a bore is being drilled. Cremeans states that it is an advantage of this mixture, which includes the surface-active agent, that it does not break down immediately upon mixing. "Since the pellets do not immediately break down and absorb large quantities of water, the viscosity of the drilling fluid remains low." Col. 5, ll. 20-27. In addition to the inclusion of component ingredients not present in the current invention, Cremeans does not disperse directly upon introduction into the drilling fluid. Accordingly, Cremeans does not disclose each element of Applicant's invention.

Wagener

The Examiner states that claims 1, 2, 5, and 8 - 12 are anticipated by Wagener, which teaches pellets of comminuted paper. The newly amended claims recite a non-chemically treated, or raw, material. Wagner, on the other hand, does not anticipate because paper itself is the product of a chemical treatment to wood pulp that may include caustic treatment and bleaching. Furthermore, the ground or shredded paper material is further treated in Wagener by spraying with water and a surfactant before compression (col. 3, ll. 13-17). As such, the paper material is chemically treated and does not anticipate these claims. Thus, Wagener does not treat a raw or untreated base material.

Claim 1 has been amended to change the preamble language from "comprising" to "consisting of." As such, Wagener does not anticipate the present invention since Wagener does not contain a chemically untreated raw material and contains other components not specifically listed as being a part of the current invention.

Claims 2, 5, and 8-12 depend from 1 and include the limitations found therein.

Armentrout '555 and '268

In Armentrout '268 (col. 2, ll. 15 – 27 and col. 4, ll. 16 – 28), the additive is pumped down hole and is carried to the location in which sealing is required. Penetration of the additive is delayed until the material approaches or has reached the location it is desired to seal in order to recover circulation. Armentrout '555 also requires that the additive pellets "be carried to the cracks or crevices for sealing prior to the centers of the pellets becoming completely wetted by the water in the drilling mud" (col. 1, ll. 51 – 54). Armentrout does not disclose uniform dispersion of the additive in the mud pit, prior to pumping the fluid down hole, as required in the present invention.

Summary

The claims in the present application have been amended to further distinguish the present invention over the cited references. The additive of the present invention requires that the additive uniformly disperse upon introduction into the drilling fluid, prior to being pumped down hole. The additives of references, except for Wagener, require that the additives remain intact until they reached their destination. The additive in Wagener does not include any of the materials that are claimed as an additive within the present invention, and is not raw. An element of the present invention is missing from the cited references and as such the inventions in the cited references cannot anticipate the present invention.

The preamble language for Claim 1 has been amended from "comprising" to "consisting of." The references, such as Wagener, contain other components not specifically listed in the claims of the present invention. Thus, those references cannot anticipate the present invention.

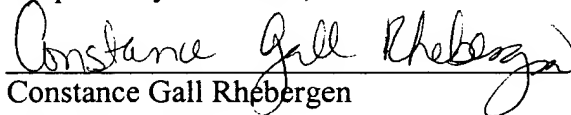
New Claim 1 is patentably distinguishable from the cited references. Claims 2 – 13 depend from Claim 1 and incorporate the patentable distinctions of Claim 1 discussed previously within this response.

In commenting upon the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between the references and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions to create any implied limitations in the claims. Not all of the distinctions between the prior art and Applicant's present invention have been made by Applicant. For the foregoing reasons, Applicant reserves the right to submit additional evidence showing the distinctions between Applicant's invention to be unobvious in view of the prior art.

The foregoing remarks are intended to assist the Examiner in re-examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention, which render it patentable, being only examples of certain advantageous features and differences that Applicant's attorney chooses to mention at this time.

Reconsideration of the application and allowance of all of the claims are respectfully requested. In view of the foregoing Amendment, Applicant respectfully submits that all of the claims are allowable, and Applicant respectfully requests the issuance of a Notice of Allowance.

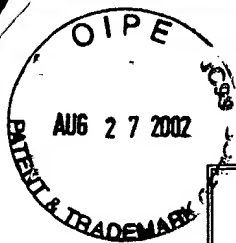
Respectfully submitted,


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MARKED UP VERSION SHOWING CHANGES

1. A pelletized dense additive for lost circulation, seepage control, fluid loss and control of lubricity, viscosity and rheology in drilling operations, ~~comprising~~consisting of:

a ground raw base material that is compressed into a pellet, ~~said pellet~~ having a density substantially greater than that of the ground base material, the pellet dispersing within a drilling fluid directly upon introduction to the drilling fluid.

2. The pelletized dense additive of claim 1 wherein the base material is selected from the group consisting ~~essentially~~ of lignites, leonardites, lignin-based powders, bitumens, lignosulfonates, asphalts, clays, polyacrylate homopolymers and copolymers, cellulosic polymers, xanthan gums, metal silicates, starches, guar gum, cellulosic fibers, fatty acids, amphoteric, carboxymethyl cellulose, welan gum, hydrocarbon resins, barite, hematite, hydroxyethylcellulose, chlorides, bromides, polyphosphates, zinc, gilsonite, graphite, coke and mixtures thereof.

3. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of calcium carbonate, mica, diatomaceous earth, Fuller's earth and other silicates, activated charcoal, bauxite, alumina gel, graphite, gilsonite and mixtures thereof.

4. The pelletized dense additive of claim 1 wherein the base material further includes compound selected from the group consisting ~~essentially~~ of lignites containing calcium hydroxide, leonardite, leonardite with potassium, leonardite with gyp, organophilic leonardite, lignin-based powders, bitumens and mixtures thereof.

5. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of lignosulfonates, lignosulfonates with chrome, lignosulfonates with calcium, lignosulfonates with iron, lignosulfonates with tin, lignosulfonates with zinc lignosulfonates with heavy metals and mixtures thereof.

6. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of asphalt, sodium sulfonate asphalt, potassium sulfonate asphalt and mixtures thereof.

7. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of clays, organophilic clays, attapulgite clays, montmorillonite clays, kaolinite clays, calcined clays and mixtures thereof.

8. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of polyacrylate powders, polyacrylamide homopolymers, polyacrylamide copolymers, polyanionic cellulose, cellulosic polymers and mixtures thereof.

9. The pelletized dense additive of claim 1 wherein the base material further includes compounds selected from the group consisting ~~essentially~~ of xantham gums, metal silicates, vegetable starches, fatty acids, cellulose compounds, barium sulfate, hematite, hydroxyethylcellulose, sodium chlorides, calcium chloride, potassium chloride, bromides, polyphosphate, sodium, calcium, zinc, gilsonite, graphite, petroleum coke, calcine coke, Rockwool insulation and mixtures thereof.

10. The pelletized dense additive of claims 1-9 further comprising a binding agent selected from the group consisting ~~essentially~~ of clays, guar gum, lignosulfonate, wood sugar, starch and mixtures thereof.

12. The pelletized dense additive of claim 4-1 wherein the ~~organic~~ base material is selected from the group consisting ~~essentially~~ of ground wood, pine bark, fruit pomace, vegetable pomace, yellow pine, pine bark, corn cobs, peanut hulls, pecan pits, almond shell, corn cob outers, bees wings, cotton burrs, kenaf, silage, oat hulls, rice hulls, seed shells, sunflower, flax, linseed, cocoa bean, feathers, peat moss, jute, flax, mohair, wool, sugar cane, bagasse, sawdust, bamboo, cork, popcorn, tapioca, grain sorghum and soluble gums.